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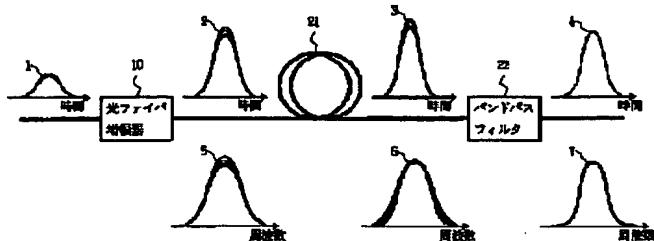
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APPLICANT : NIPPON TELEGR & TELEPH CORP
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TITLE : LOW NOISE OPTICAL AMPLIFIER



ABSTRACT : PROBLEM TO BE SOLVED: To suppress the noise component occurring at an optical fiber amplifier with a simple configuration.

SOLUTION: An abnormal dispersion optical fiber 21 and a band pass filter 22 are provided at a post stage of an optical fiber amplifier 10, and the length of the abnormal dispersion optical fiber 21 is so controlled as to be longer than soliton cycle while the incidence peak power of the abnormal dispersion optical fiber larger than basic soliton power while equal to twice the basic soliton power or less. Soliton cycle Z_0 (m) and basic soliton power P_0 (W) is given in $Z_0 = \pi^2 C T_0^2 / (\lambda^2 D)$,

$P_0 = \lambda^3 A_{\text{eff}} z D / (4\pi^2 C n_2 T_0^2)$, where wavelength dispersion value of abnormal dispersion optical fiber is D (s/m^2), effective core sectional area is A_{eff} (m^2), non-linear refractive index is n_2 (m^2/W), pulse width of light pulse signal is T_0 (sec), wavelength is λ (m), light speed is C (m/sec).

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